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INTER - OFFICE CORRESPONDENCE

Richmond, Virginia

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To: G. Keritsis

From: S. Edith Taylor

Subject: Elemental Analysis and Surface Morphology of Base Web from Winston Lights 80 Box

At your request, the (light) base web and the (dark) base web from cigarettes of Winston Lights 80 box were measured for elemental composition. The elemental analysis showed higher amounts of K and Ca in the dark base web sample. The presence of Mg, Al, Si, P, S and Cl were detected in the dark base web while the light base web had less of these elements and the presence was not uniform across the sample. Representative spectra from the dark and light base web are in figures 1 and 2 respectively.

Samples of PM Pilot Plant RLTC (1370) and base web (1379) were obtained from B. Rogers. The PM base web and RL were measured for elemental composition as a comparison to the Winston samples. The RL contained MG, P, S, Cl, K, and Ca, while only small amounts of Cl, K and Ca were detected in the base web. Representative spectra from PM RL and base web are included in figures 3 and 4, respectively.

In addition to the elemental analyses, the surfaces of the two samples were studied by scanning electron microscopy. Both samples have rough, gnarled surfaces. At 1000X magnification, the dark base web, figure 7, had a prevalence of fine grained texture (see arrows), while the light base web, figure 6, was wrinkled, but did not have a fine grained texture. This difference in texture is probably due to a coating material.

The Winston and our Pilot Plant samples were wetted with water to see if coating materials dissolved. The dark Winston sample turned the water brown after it had been in water, while the light sample did not effect the water. The fact that the dark sample turned the water brown, together with the elemental data confirms that the dark Winston sample was probably coated with additional solubles. The Winston and PM Pilot Plant samples that were wetted were placed under the Vanox compound microscope and photographed. By this method, the transmitted light illuminated the samples so that the fibers were easily visible. Notice in figure 7 the comparison by our RCB and the dark coated Winston base web. The RCB has distinct fragments, but fibers can be seen in the dark coated Winston sample. Figure 8 shows a comparison of the dark coated Winston, the light base web Winston and PM Pilot Plant RL. Finally, figure 9 shows a comparison of the dark coated Winston, the PM Pilot Plant base web and the light base web from Winston. The color balance of figures 7, 8 and 9 is different because the photographs were made on two separate occasions when the light setting was different. Two different boxes of film were used as well. The color differences between the one set, 7 and 8, and the other set, 9, do not impair the information being presented. All three photographs show long fibers in the base web and RL materials, but not in the RCB.

PM3000831547

These comparisons confirm that the dark and light samples from Winston lights 80 box were coated base web and base web from an RL process. Transmitted light microscopy proved a better technique for determining the characteristic of the material, i.e. whether the dark sample was an RCB type or RL type, than scanning electron microscopy.

/sbb

cc: G. Bokelman
R. Cox
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29 CNT

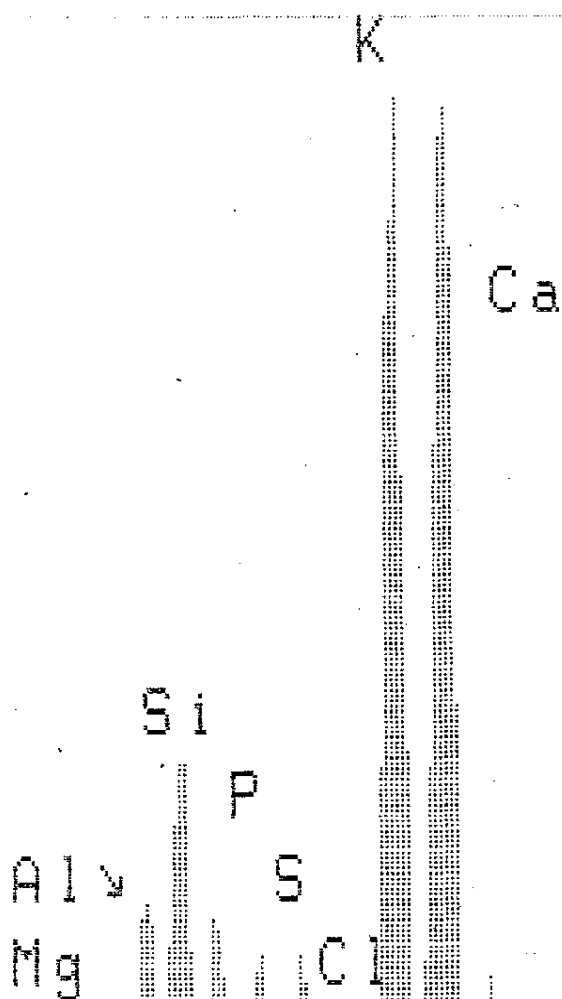
4920 EV

511 FS: A

10 EV/CHAN

Link Systems 860 Analyser

11-Jun-86



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MEP A: CGUS2 X500 625CPS A-250NA

Figure 1: Coated Base Web

Elemental Composition

PM3000831549

0 CNT

511 FS: B

4980 EV

10 EV/CHAN

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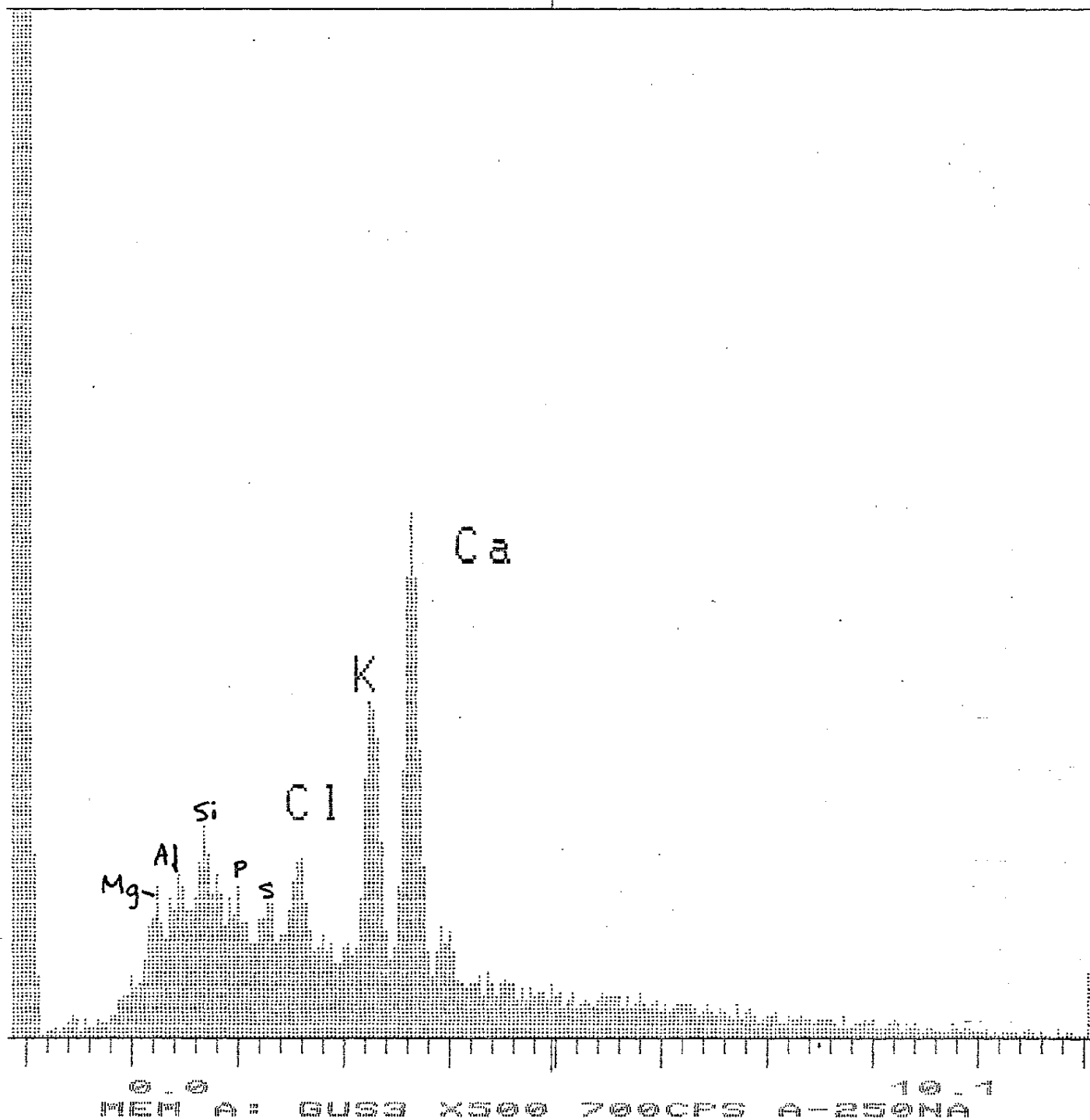


Figure 2: Uncoated Base Web

Elemental Composition

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511 FS: B

4960 EU

10 EU/CHAN

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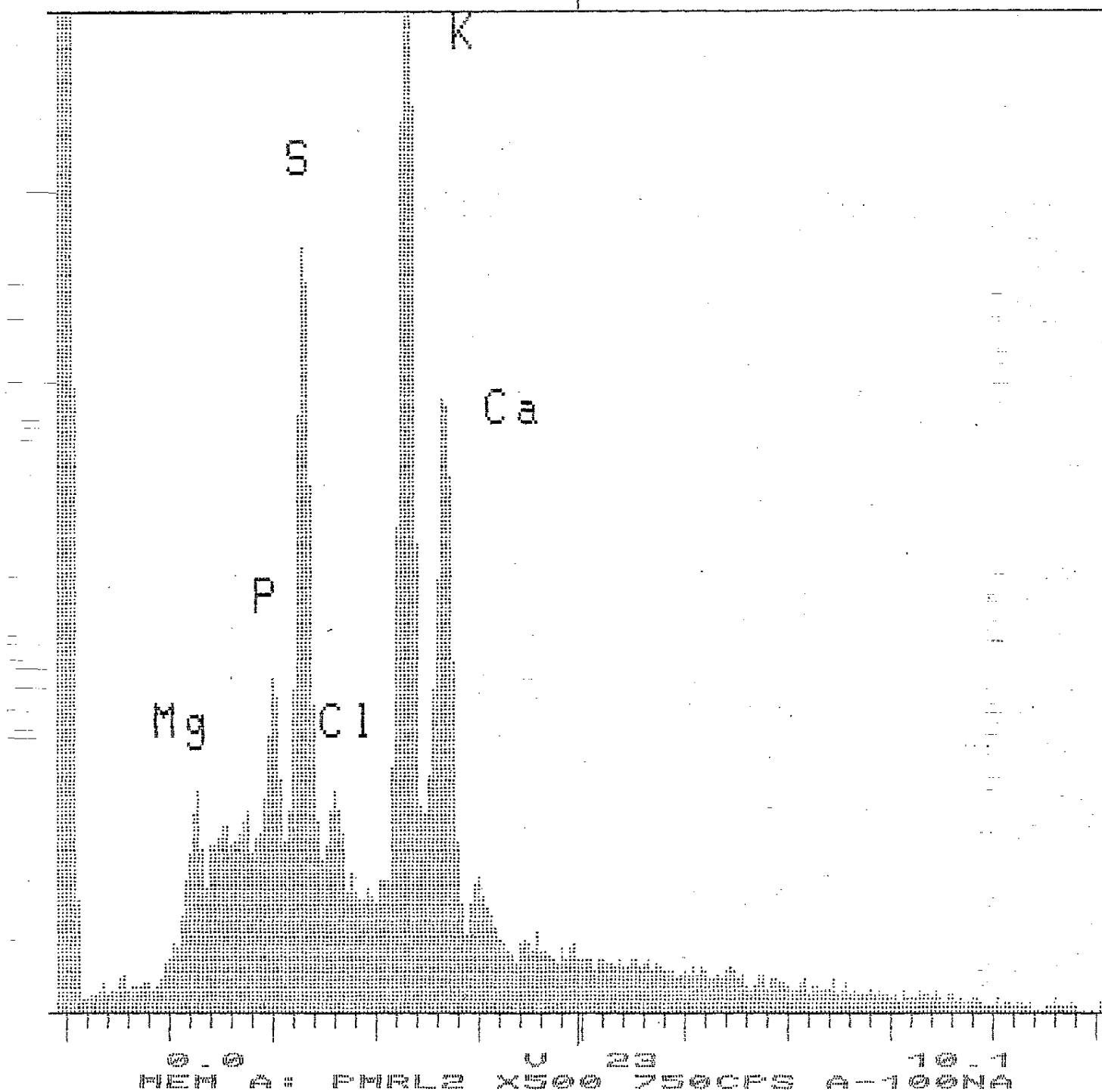


Figure 3: PM RLTC (#1370) Elemental
Composition of Top Surface

PM3000831551

10 CNT

511 FS: A

4980 EV

10 EV/CHAN

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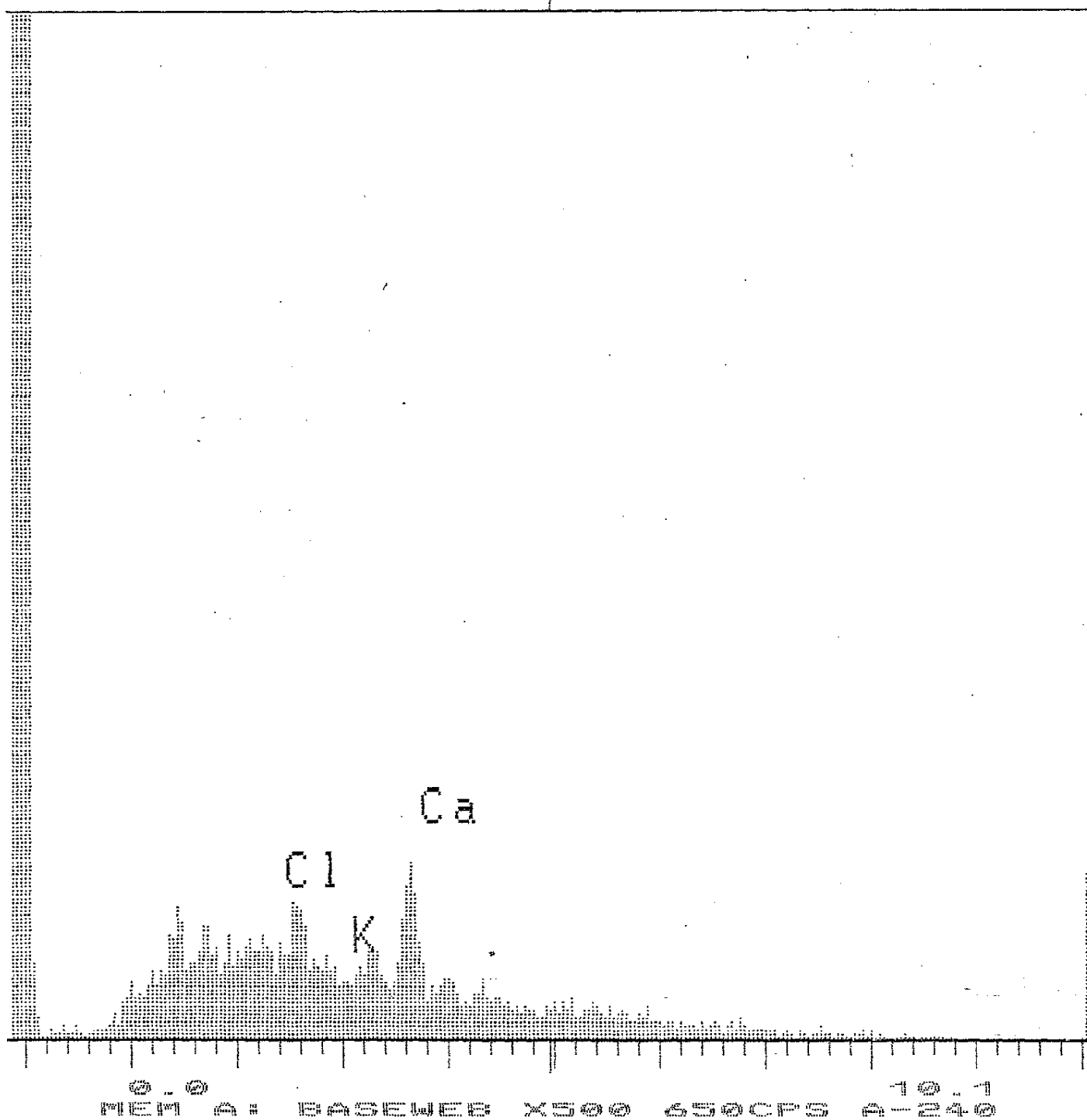


Figure 4: PM Base Web (#1379) Elemental

Composition of Top Surface

PM3000831552

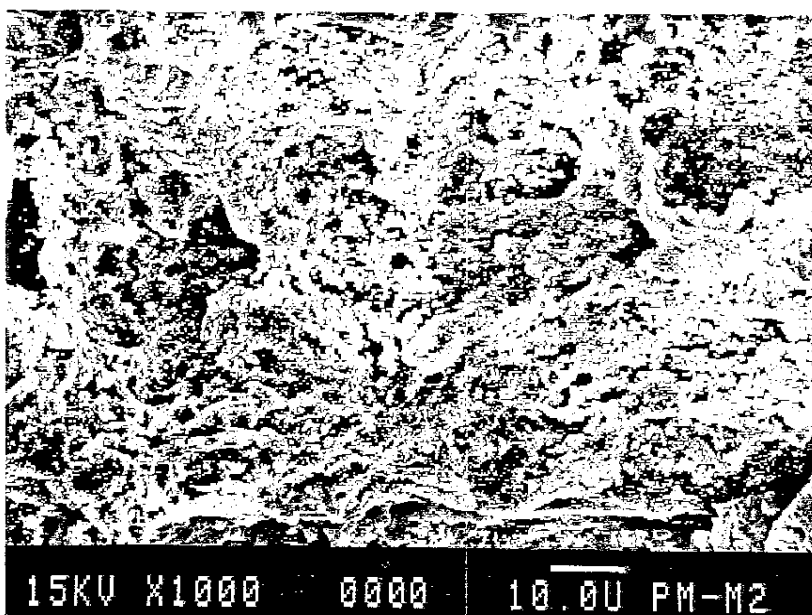


Figure 5: Top surface of dark, coated base web from Winston lights 80 box cigarettes 1000X magnification.

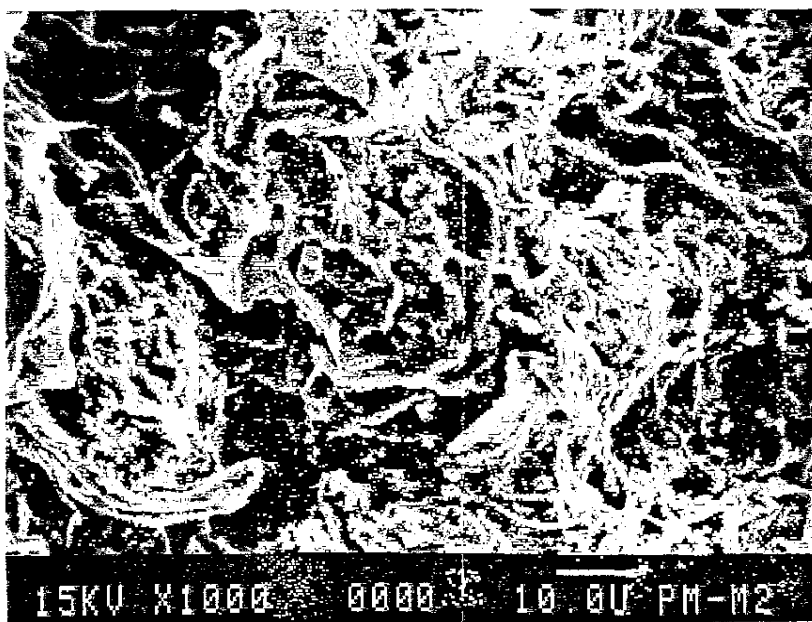


Figure 6: Surface of light base web from Winston lights 80 box cigarettes 1000X magnification.



RCB

Dark coated base web

Figure 7: Comparison of PM RCB with dark coated base web
Winston lights 80 box cigarettes 20X magnification.



Dark coated
base web

light base
web

RL

Figure 8: Comparison of dark, coated base web and light base web
both from Winston lights 80 box cigarettes with PM RL
20X magnification.



Light base web
from Winston



PM base web



Dark, coated base web
from Winston

Figure 9: Comparison of Winston lights 80 box cigarette base web samples with PM base web 20X magnification.